

Use Attainability Analysis

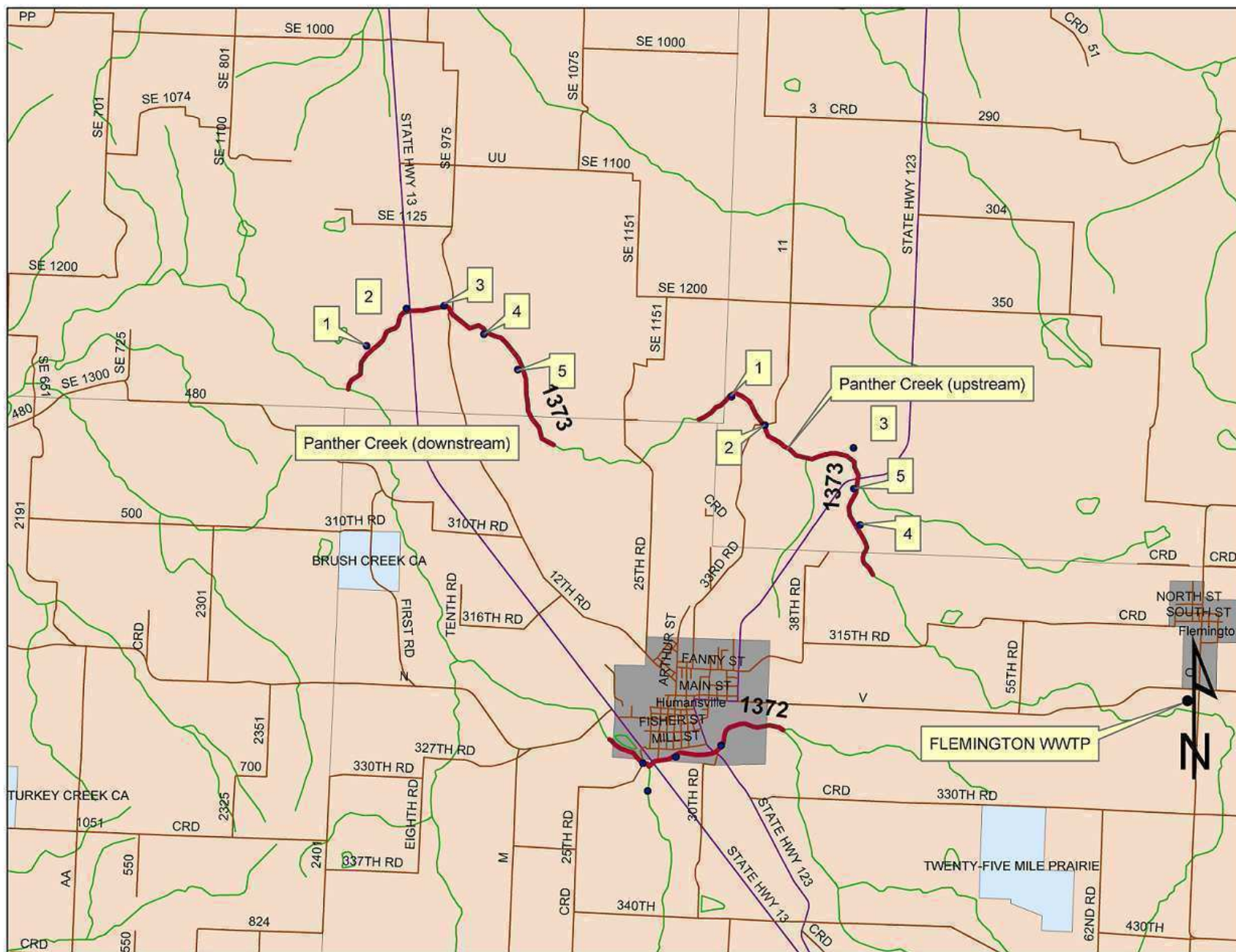
for

WBID 1373 Panther Creek

Submitted by
SES, Inc.

To
Missouri Department of Natural Resources
Water Protection Program

Date Received: June 4, 2007



Field Data Sheets for Recreation Use Stream Surveys
Data Sheet A - Water Body Identification
(For water body being surveyed)

Water Body Information

Water Body Name:	Panther Creek (upstream)	WBID:	1373
8 digit HUC code:	10290106	County:	Hickory
Upstream Legal Description	35N 24W 11		
Downstream Legal Description	36N 24W 33		
Number of Sites Evaluated	5		
List all site numbers, listed upstream to downstream	4,5,3,2,1		

Discharger Facility Information

Discharger Facility Name(s):	Flemington WWTP
Discharger Permit Number(s):	MO0118982

UAA Surveyor

Name of Surveyor:	Nolan Pringle	Telephone Number:	(913)307-0046
Organization/Employer:	SES, Inc.		
Position:	Field Team Leader		

Signed: _____ Date: _____

Field Data Sheets for Recreational Use Stream Surveys
Data Sheet B - Site Characterization
(must be completed for each site)

WBID 1373
 Site # 1

Date and Time: 5/18/2007 10:00

Current Weather Conditions sunny, clear

Weather Conditions for Past 10 days: Rain showers on 5/9, 5/10, and 5/15

Drought Conditions? No

Site Location (e.g. road crossing) 500 yards downstream of crossing 33 rd

GPS Mark: 21

Upstream Photo 43 Downstream Photo 44

Uses Observed (Uses actually observed at time of survey) Circle

Swimming	Skin Diving	SCUBA diving	Tubing
Water Skiing	Wind Surfing	Kayaking	Boating
Wading	Rafting	Hunting	Trapping
Fishing	None of the Above	Other	

Surrounding Conditions

City/county parks	Playgrounds	MDC conservation lands	Urban areas
Campgrounds	Boating accesses	State parks	National Forests
Nature trails	Stairs/walkway	No trespass sign	Fence
Steep slopes	None of the Above	Other	

Indications of Human Use

Roads	Rope swings	Foot paths/prints	Dock/platform
Livestock Watering	RV/ATV Tracks	Camping Sites	Fire pit/ring
NPDES Discharge	Fishing Tackle	Other:	None of the Above

WBID # 1373 **Site #** 1
Mark # 21 **Dissolved Oxygen (ppm)** 7.2
Upstream Views Physical Dimensions: Is there any water present at this view? yes
 If so, is there an obvious current? yes

Select one of the following channel features:

	% of Channel Feature				
Riffle	25				
Run	0				
Pool	75				

Downstream View's Physical Dimensions: Is there any water present at this view?

If so, is there an obvious current?

Substrate:

% Cobble	% Gravel	% Sand	% Silt
50	35	0	0
% Mud/Clay	% Bedrock		
0	15		

Aquatic Vegetation: (Note amount of vegetation or algal growth at the assessment site)

Thick filamentous algae. Vegetation along banks. Floating algae scattered. Algae on rocks.

Water Characteristics

Odor	Sewage	<i>Musky</i>	Chemical	None	Other
Color	<i>Clear</i>	Green	Gray	Milky	Other
Bottom Deposit	Sludge	Solids	Fine Sed.	None	<i>Other: leaves, dead algae</i>
Surface Deposit	Oil	<i>Scum</i>	Foam	None	Other

Data Sheet C: Cross-Sectional Depth Measurements (for estimation of median depth)
(Median Depth Shown in Bold)

Site # 1

Mark # 21

	Depth (m)		Depth (m)		Depth (m)
Transect 1	0.10	Transect 5	0.10	Transect 9	0.05
Substrate:	0.20	Substrate:	0.20	Substrate:	0.05
cobble/gravel	0.35	cobble/gravel	0.30	cobble/gravel	0.10
Water Clarity:	0.40	Water Clarity:	0.30	Water Clarity:	0.05
clear	0.40	clear	0.30	clear	0.10
Channel Feature:	0.25	Channel Feature:	0.25	Channel Feature:	0.10
pool	0.20	pool	0.15	riffle	0.10
Channel Width:	0.20	Channel Width:	0.10	Channel Width:	0.10
13 yards	0.20	8 yards	0.10	8 yards	0.05
0.20	0.15	0.18	0.10	0.08	0.05
Transect 2	0.25	Transect 6	0.10	Transect 10	0.05
Substrate:	0.20	Substrate:	0.15	Substrate:	0.15
bedrock	0.10	coble/gravel	0.20	cobble/gravel	0.30
Water Clarity:	0.40	Water Clarity:	0.25	Water Clarity:	0.35
clear	0.50	clear	0.35	clear	0.35
Channel Feature:	0.55	Channel Feature:	0.30	Channel Feature:	0.25
pool	0.55	pool	0.30	pool	0.20
Channel Width:	0.35	Channel Width:	0.20	Channel Width:	0.20
14 yards	0.25	8 yards	0.15	13 yards	0.15
0.30	0.15	0.20	0.10	0.20	0.15
Transect 3	0.05	Transect 7	0.10	Transect 11	0.10
Substrate:	0.05	Substrate:	0.10	Substrate:	0.20
bedrock/cobble	0.15	cobble/gravel	0.10	cobble/gravel	0.25
Water Clarity:	0.20	Water Clarity:	0.05	Water Clarity:	0.25
clear	0.10	clear	0.10	clear	0.40
Channel Feature:	0.30	Channel Feature:	0.30	Channel Feature:	0.40
riffle	0.40	riffle/pool	0.40	pool	0.40
Channel Width:	0.30	Channel Width:	0.60	Channel Width:	0.45
13 yards	0.25	14 yards	0.75	14 yards	0.45
0.23	0.25	0.20	0.75	0.40	0.45
Transect 4	0.10	Transect 8	0.20		
Substrate:	0.25	Substrate:	0.60	SITE MEDIAN	SITE MAXIMUM
bedrock/cobble	0.30	cobble/gravel	0.60	0.25	1.00
Water Clarity:	0.35	Water Clarity:	0.70		
clear	0.30	clear	1.00		
Channel Feature:	0.30	Channel Feature:	1.00		
pool	0.30	pool	1.00		
Channel Width:	0.30	Channel Width:	1.00		
10 yards	0.25	10 yards	1.00		
0.30	0.25	0.85	0.70		

Field Data Sheets for Recreational Use Stream Surveys
Data Sheet B - Site Characterization
(must be completed for each site)

WBID 1373
 Site # 2

Date and Time: 5/18/2007 10:50

Current Weather Conditions sunny, clear

Weather Conditions for Past 10 days: Rain showers on 5/9, 5/10, and 5/15

Drought Conditions? No

Site Location (e.g. road crossing) upstream 10 yards of road crossing (33rd)

GPS Mark: 22

Upstream Photo 45 Downstream Photo 46

Uses Observed (Uses actually observed at time of survey) Circle

Swimming	Skin Diving	SCUBA diving	Tubing
Water Skiing	Wind Surfing	Kayaking	Boating
Wading	Rafting	Hunting	Trapping
Fishing	None of the Above	Other	

Surrounding Conditions

City/county parks	Playgrounds	MDC conservation lands	Urban areas
Campgrounds	Boating accesses	State parks	National Forests
Nature trails	Stairs/walkway	No trespass sign	Fence
Steep slopes	None of the Above	Other	

Indications of Human Use

Roads	Rope swings	Foot paths/prints	Dock/platform
Livestock Watering	RV/ATV Tracks	Camping Sites	Fire pit/ring
NPDES Discharge	Fishing Tackle	Other:	None of the Above

WBID # 1373 **Site #** 2
Mark # 22 **Dissolved Oxygen (ppm)** 9.7
Upstream Views Physical Dimensions: Is there any water present at this view? yes
 If so, is there an obvious current? yes

Select one of the following channel features:

	% of Channel Feature				
Riffle	27				
Run	0				
Pool	73				

Downstream View's Physical Dimensions: Is there any water present at this view?

If so, is there an obvious current?

Substrate:

% Cobble	% Gravel	% Sand	% Silt
35	55	0	0
% Mud/Clay	% Bedrock		
0	10		

Aquatic Vegetation: (Note amount of vegetation or algal growth at the assessment site)

Water grasses. Filamentous algae in riffles and shallow pools. Algae on rocks. No floating algae.
 Vegetation along banks

Water Characteristics

Odor	Sewage	Musky	Chemical	None	Other
Color	Clear	Green	Gray	Milky	Other
Bottom Deposit	Sludge	Solids	Fine Sed.	None	Other
Surface Deposit	Oil	Scum	Foam	None	Other

Data Sheet C: Cross-Sectional Depth Measurements (for estimation of median depth)
(Median Depth Shown in Bold)

Site # 2

Mark # 22

	Depth (m)		Depth (m)		Depth (m)
Transect 1	0.10	Transect 5	0.30	Transect 9	0.20
Substrate:	0.10	Substrate:	0.35	Substrate:	0.30
cobble/gravel	0.05	bedrock/gravel	0.35	bedrock/gravel	0.35
Water Clarity:	0.05	Water Clarity:	0.30	Water Clarity:	0.40
clear	0.05	clear	0.30	clear	0.40
Channel Feature:	0.10	Channel Feature:	0.25	Channel Feature:	0.25
riffle	0.10	pool	0.25	pool	0.25
Channel Width:	0.10	Channel Width:	0.25	Channel Width:	0.30
9 yards	0.10	9 yards	0.25	10 yards	0.30
0.10	0.10	0.28	0.25	0.30	0.10
Transect 2	0.05	Transect 6	0.10	Transect 10	0.05
Substrate:	0.05	Substrate:	0.30	Substrate:	0.05
cobble/gravel	0.10	bedrock/gravel	0.30	cobble/gravel	0.05
Water Clarity:	0.15	Water Clarity:	0.40	Water Clarity:	0.15
clear	0.15	clear	0.35	clear	0.20
Channel Feature:	0.20	Channel Feature:	0.30	Channel Feature:	0.10
pool	0.25	pool	0.15	riffle	0.05
Channel Width:	0.30	Channel Width:	0.15	Channel Width:	0.05
12 yards	0.25	9 yards	0.15	6 yards	0.05
0.18	0.25	0.23	0.15	0.05	0.05
Transect 3	0.05	Transect 7	0.30	Transect 11	0.05
Substrate:	0.15	Substrate:	0.30	Substrate:	0.10
cobble/gravel	0.30	cobble/gravel	0.40	cobble/gravel	0.10
Water Clarity:	0.40	Water Clarity:	0.45	Water Clarity:	0.15
clear	0.40	clear	0.40	clear	0.15
Channel Feature:	0.35	Channel Feature:	0.30	Channel Feature:	0.20
pool	0.35	pool	0.15	pool	0.20
Channel Width:	0.30	Channel Width:	0.15	Channel Width:	0.30
6 yards	0.30	6 yards	0.15	15 yards	0.50
0.30	0.25	0.30	0.15	0.18	0.40
Transect 4	0.15	Transect 8	0.05		
Substrate:	0.25	Substrate:	0.10	SITE MEDIAN	SITE MAXIMUM
bedrock/gravel	0.25	cobble/gravel	0.10	0.20	0.50
Water Clarity:	0.20	Water Clarity:	0.15		
clear	0.25	clear	0.25		
Channel Feature:	0.25	Channel Feature:	0.20		
pool	0.25	riffle	0.15		
Channel Width:	0.25	Channel Width:	0.15		
12 yards	0.25	7 yards	0.15		
0.25	0.25	0.15	0.15		

Field Data Sheets for Recreational Use Stream Surveys
Data Sheet B - Site Characterization
(must be completed for each site)

WBID 1373
 Site # 3

Date and Time: 5/18/2007 11:30

Current Weather Conditions sunny, clear

Weather Conditions for Past 10 days: Rain showers on 5/9, 5/10, and 5/15

Drought Conditions? No

Site Location (e.g. road crossing) 200 yards downstream of crossing (Hwy 123)

GPS Mark: 23

Upstream Photo 48 Downstream Photo 47

Uses Observed (Uses actually observed at time of survey) Circle

Swimming	Skin Diving	SCUBA diving	Tubing
Water Skiing	Wind Surfing	Kayaking	Boating
Wading	Rafting	Hunting	Trapping
Fishing	None of the Above	Other	

Surrounding Conditions

City/county parks	Playgrounds	MDC conservation lands	Urban areas
Campgrounds	Boating accesses	State parks	National Forests
Nature trails	Stairs/walkway	No trespass sign	Fence
Steep slopes	None of the Above	Other	

Indications of Human Use

Roads	Rope swings	Foot paths/prints	Dock/platform
Livestock Watering	RV/ATV Tracks	Camping Sites	Fire pit/ring
NPDES Discharge	Fishing Tackle	Other:	None of the Above

WBID # 1373 **Site #** 3
Mark # 23 **Dissolved Oxygen (ppm)** 11.7
Upstream Views Physical Dimensions: Is there any water present at this view? yes
 If so, is there an obvious current? yes

Select one of the following channel features:

	% of Channel Feature				
Riffle	19				
Run	0				
Pool	81				

Downstream View's Physical Dimensions: Is there any water present at this view?

If so, is there an obvious current?

Substrate:

% Cobble	% Gravel	% Sand	% Silt
44	44	0	12
% Mud/Clay	% Bedrock		
0	0		

Aquatic Vegetation: (Note amount of vegetation or algal growth at the assessment site)

Water grasses. Algae on rocks. Vegetation along banks. No floating algae.

Water Characteristics

Odor	Sewage	Musky	Chemical	None	Other
Color	Clear	Green	Gray	Milky	Other
Bottom Deposit	Sludge	Solids	Fine Sed.	None	Other: leaves, detritus
Surface Deposit	Oil	Scum	Foam	None	Other

Data Sheet C: Cross-Sectional Depth Measurements (for estimation of median depth)
(Median Depth Shown in Bold)

Site # 3

Mark # 23

	Depth (m)		Depth (m)		Depth (m)
Transect 1	0.10	Transect 5	0.05	Transect 9	0.05
Substrate:	0.35	Substrate:	0.05	Substrate:	0.15
silt/cobble/gravel	0.55	cobble/gravel	0.05	cobble/gravel	0.25
Water Clarity:	0.70	Water Clarity:	0.05	Water Clarity:	0.35
clear	0.70	clear	0.10	clear	0.35
Channel Feature:	0.80	Channel Feature:	0.10	Channel Feature:	0.30
pool	0.70	rifle	0.20	pool	0.30
Channel Width:	0.55	Channel Width:	0.20	Channel Width:	0.35
9 yards	0.30	13 yards	0.10	7 yards	0.25
0.55	0.30	0.10	0.10	0.28	0.15
Transect 2	0.25	Transect 6	0.35	Transect 10	0.05
Substrate:	0.40	Substrate:	0.30	Substrate:	0.15
silt/cobble/gravel	0.60	cobble/silt/gravel	0.40	cobble/gravel	0.20
Water Clarity:	0.65	Water Clarity:	0.50	Water Clarity:	0.15
clear	0.65	clear	0.60	clear	0.25
Channel Feature:	0.70	Channel Feature:	0.70	Channel Feature:	0.25
pool	0.80	pool	0.65	pool	0.20
Channel Width:	0.85	Channel Width:	0.40	Channel Width:	0.20
10 yards	0.85	8 yards	0.40	6 yards	0.25
0.65	0.65	0.40	0.30	0.20	0.25
Transect 3	0.10	Transect 7	0.05	Transect 11	0.05
Substrate:	0.25	Substrate:	0.10	Substrate:	0.10
silt/cobble/gravel	0.45	cobble/gravel	0.10	cobble/gravel	0.10
Water Clarity:	0.45	Water Clarity:	0.20	Water Clarity:	0.05
clear	0.50	clear	0.15	clear	0.05
Channel Feature:	0.55	Channel Feature:	0.20	Channel Feature:	0.05
pool	0.65	pool	0.20	rifle	0.15
Channel Width:	0.65	Channel Width:	0.15	Channel Width:	0.20
11 yards	0.50	7 yards	0.05	12 yards	0.25
0.48	0.30	0.13	0.05	0.10	0.15
Transect 4	0.30	Transect 8	0.25		
Substrate:	0.55	Substrate:	0.35	SITE MEDIAN	SITE MAXIMUM
silt/cobble/gravel	0.70	cobble/gravel	0.40	0.30	0.85
Water Clarity:	0.85	Water Clarity:	0.30		
clear	0.75	clear	0.40		
Channel Feature:	0.55	Channel Feature:	0.35		
pool	0.30	pool	0.40		
Channel Width:	0.20	Channel Width:	0.40		
13 yards	0.20	6 yards	0.30		
0.43	0.10	0.35	0.20		

Field Data Sheets for Recreational Use Stream Surveys
Data Sheet B - Site Characterization
(must be completed for each site)

WBID 1373
 Site # 4

Date and Time: 5/18/2007 12:07

Current Weather Conditions sunny, clear

Weather Conditions for Past 10 days: Rain showers on 5/9, 5/10, and 5/15

Drought Conditions? No

Site Location (e.g. road crossing) 400 yards upstream of crossing (123 Hwy)

GPS Mark: 24

Upstream Photo 50 Downstream Photo 49

Uses Observed (Uses actually observed at time of survey) Circle

Swimming	Skin Diving	SCUBA diving	Tubing
Water Skiing	Wind Surfing	Kayaking	Boating
Wading	Rafting	Hunting	Trapping
Fishing	None of the Above	Other	

Surrounding Conditions

City/county parks	Playgrounds	MDC conservation lands	Urban areas
Campgrounds	Boating accesses	State parks	National Forests
Nature trails	Stairs/walkway	No trespass sign	Fence
Steep slopes	None of the Above	Other	

Indications of Human Use

Roads	Rope swings	Foot paths/prints	Dock/platform
Livestock Watering	RV/ATV Tracks	Camping Sites	Fire pit/ring
NPDES Discharge	Fishing Tackle	Other:	None of the Above

WBID # 1373 **Site #** 4
Mark # 24 **Dissolved Oxygen (ppm)** 9.5
Upstream Views Physical Dimensions: Is there any water present at this view? yes
 If so, is there an obvious current? yes

Select one of the following channel features:

	% of Channel Feature				
Riffle	10				
Run	0				
Pool	90				

Downstream View's Physical Dimensions: Is there any water present at this view?

If so, is there an obvious current?

Substrate:

% Cobble	% Gravel	% Sand	% Silt
40	40	0	15
% Mud/Clay	% Bedrock		
0	5		

Aquatic Vegetation: (Note amount of vegetation or algal growth at the assessment site)

No floating algae. Algae on rocks. Vegetation along banks. Filamentous algae in shallow areas.

Water Characteristics

Odor	Sewage	<i>Musky</i>	Chemical	None	Other
Color	<i>Clear</i>	Green	Gray	<i>Milky</i>	Other
Bottom Deposit	Sludge	Solids	Fine Sed.	None	<i>Other: leaves, detritus</i>
Surface Deposit	Oil	Scum	Foam	<i>None</i>	Other

Data Sheet C: Cross-Sectional Depth Measurements (for estimation of median depth)
(Median Depth Shown in Bold)

Site # 4

Mark # 24

	Depth (m)		Depth (m)		Depth (m)
Tansect 1	0.15	Tansect 5	0.15	Tansect 9	0.15
Substrate:	0.60	Substrate:	0.25	Substrate:	0.20
cobble/gravel	1.00	cobble/gravel/silt	0.25	bedrock/cobble/gravel	0.20
Water Clarity:	1.00	Water Clarity:	0.35	Water Clarity:	0.45
clear to murky	1.00	clear	0.45	clear	0.55
Channel Feature:	1.00	Channel Feature:	0.45	Channel Feature:	0.50
pool	0.80	pool	0.40	pool	0.50
Channel Width:	0.60	Channel Width:	0.45	Channel Width:	0.40
8 yards	0.50	13 yards	0.40	8 yards	0.25
0.70	0.50	0.38	0.30	0.33	0.15
Tansect 2	0.35	Tansect 6	0.10	Tansect 10	0.20
Substrate:	0.60	Substrate:	0.25	Substrate:	0.35
cobble/gravel	0.75	cobble/silt/gravel	0.30	rock/cobble/gravel/silt	0.35
Water Clarity:	0.80	Water Clarity:	0.35	Water Clarity:	0.35
clear	0.80	clear	0.40	clear	0.40
Channel Feature:	0.65	Channel Feature:	0.40	Channel Feature:	0.30
pool	0.55	pool	0.40	pool	0.20
Channel Width:	0.40	Channel Width:	0.45	Channel Width:	0.15
8 yards	0.20	13 yards	0.45	7 yards	0.15
0.58	0.20	0.38	0.30	0.25	0.15
Tansect 3	0.05	Tansect 7	0.35	Tansect 11	0.05
Substrate:	0.05	Substrate:	0.50	Substrate:	0.10
cobble/gravel	0.10	cobble/gravel	0.50	cobble/gravel	0.10
Water Clarity:	0.10	Water Clarity:	0.40	Water Clarity:	0.20
clear	0.15	clear	0.00	clear	0.25
Channel Feature:	0.05	Channel Feature:	0.00	Channel Feature:	0.20
riffle	0.10	pool	0.00	pool	0.20
Channel Width:	0.05	Channel Width:	0.00	Channel Width:	0.20
4 yards	0.05	7 yards	0.15	6 yards	0.15
0.05	0.05	0.15	0.15	0.18	0.10
Tansect 4	0.25	Tansect 8	0.05		
Substrate:	0.45	Substrate:	0.10	SITE MEDIAN	SITE MAXIMUM
cobble/silt	0.55	cobble/gravel	0.15	0.25	1.00
Water Clarity:	0.65	Water Clarity:	0.15		
clear	0.70	clear	0.15		
Channel Feature:	0.70	Channel Feature:	0.20		
pool	0.70	pool	0.20		
Channel Width:	0.55	Channel Width:	0.15		
13 yards	0.40	3 yards	0.05		
0.55	0.25	0.15	0.05		

Field Data Sheets for Recreational Use Stream Surveys
Data Sheet B - Site Characterization
(must be completed for each site)

WBID 1373
 Site # 5

Date and Time: 5/18/2007 12:45

Current Weather Conditions sunny clear

Weather Conditions for Past 10 days: Rain showers on 5/9, 5/10, and 5/15

Drought Conditions? No

Site Location (e.g. road crossing) 200 yards upstream Hwy 124 crossing

GPS Mark: 25

Upstream Photo 51 Downstream Photo 52

Uses Observed (Uses actually observed at time of survey) Circle

Swimming	Skin Diving	SCUBA diving	Tubing
Water Skiing	Wind Surfing	Kayaking	Boating
Wading	Rafting	Hunting	Trapping
Fishing	None of the Above	Other	

Surrounding Conditions

City/county parks	Playgrounds	MDC conservation lands	Urban areas
Campgrounds	Boating accesses	State parks	National Forests
Nature trails	Stairs/walkway	No trespass sign	Fence
Steep slopes	None of the Above	Other	

Indications of Human Use

Roads	Rope swings	Foot paths/prints	Dock/platform
Livestock Watering	RV/ATV Tracks	Camping Sites	Fire pit/ring
NPDES Discharge	Fishing Tackle	Other:	None of the Above

WBID # 1373 **Site #** 5
Mark # 25 **Dissolved Oxygen (ppm)** 10.1
Upstream Views Physical Dimensions: Is there any water present at this view? yes
 If so, is there an obvious current? yes

Select one of the following channel features:

	% of Channel Feature				
Riffle	27				
Run	0				
Pool	73				

Downstream View's Physical Dimensions: Is there any water present at this view?

If so, is there an obvious current?

Substrate:

% Cobble	% Gravel	% Sand	% Silt
30	30	0	30
% Mud/Clay	% Bedrock		
0	10		

Aquatic Vegetation: (Note amount of vegetation or algal growth at the assessment site)

Filamentous green algae in shallows. Water grasses by bridge. Vegetation along banks. No floating algae. Algae on rocks.

Water Characteristics

Odor	Sewage	Musky	Chemical	None	Other: Musky to None
Color	Clear	Green	Gray	Milky	Other
Bottom Deposit	Sludge	Solids	Fine Sed.	None	Other
Surface Deposit	Oil	Scum	Foam	None	Other

Data Sheet C: Cross-Sectional Depth Measurements (for estimation of median depth)
(Median Depth Shown in Bold)

Site # 5

Mark # 25

	Depth (m)		Depth (m)		Depth (m)
Transect 1	0.10	Transect 5	0.05	Transect 9	0.05
Substrate:	0.15	Substrate:	0.15	Substrate:	0.10
gravel	0.20	cobble/gravel/silt	0.20	silt/cobble/gravel	0.10
Water Clarity:	0.30	Water Clarity:	0.20	Water Clarity:	0.20
clear	0.35	clear	0.30	clear	0.20
Channel Feature:	0.30	Channel Feature:	0.55	Channel Feature:	0.35
pool	0.30	pool	0.50	pool	0.50
Channel Width:	0.15	Channel Width:	0.40	Channel Width:	0.55
2 yards	0.10	6 yards	0.25	13 yards	0.40
0.18	0.10	0.23	0.15	0.28	0.35
Transect 2	0.15	Transect 6	0.05	Transect 10	0.05
Substrate:	0.40	Substrate:	0.05	Substrate:	0.05
silt/cobble/gravel	0.50	cobble/gravel	0.10	cobble/gravel/silt	0.05
Water Clarity:	0.50	Water Clarity:	0.20	Water Clarity:	0.05
clear	0.55	clear	0.20	clear	0.10
Channel Feature:	0.50	Channel Feature:	0.20	Channel Feature:	0.10
pool	0.50	pool	0.15	riffle	0.15
Channel Width:	0.45	Channel Width:	0.10	Channel Width:	0.10
8 yards	0.35	6 yards	0.10	6 yards	0.05
0.48	0.30	0.10	0.10	0.05	0.05
Transect 3	0.05	Transect 7	0.10	Transect 11	0.10
Substrate:	0.05	Substrate:	0.10	Substrate:	0.10
cobble/gravel/silt	0.10	cobble/gravel	0.20	bedrock	0.05
Water Clarity:	0.15	Water Clarity:	0.15	Water Clarity:	0.05
clear	0.30	clear	0.15	clear	0.05
Channel Feature:	0.40	Channel Feature:	0.10	Channel Feature:	0.10
pool	0.50	riffle	0.05	riffle	0.10
Channel Width:	0.60	Channel Width:	0.05	Channel Width:	0.10
11 yards	0.65	6 yards	0.05	6 yards	0.05
0.35	0.50	0.10	0.05	0.08	0.05
Transect 4	0.05	Transect 8	0.05		
Substrate:	0.15	Substrate:	0.15	SITE MEDIAN	SITE MAXIMUM
cobble/gravel	0.20	coble/gravel/silt	0.25	0.15	0.65
Water Clarity:	0.20	Water Clarity:	0.30		
clear	0.10	clear	0.30		
Channel Feature:	0.05	Channel Feature:	0.30		
pool	0.05	pool	0.25		
Channel Width:	0.05	Channel Width:	0.25		
2 yards	0.05	6 yards	0.15		
0.05	0.05	0.25	0.05		

DOWNSTREAM

Field Data Sheets for Recreation Use Stream Surveys
Data Sheet A - Water Body Identification
(For water body being surveyed)

Water Body Information

Water Body Name:	Panther Creek (downstream)	WBID:	1373
8 digit HUC code:	10290106	County:	St. Clair
Upstream Legal Description	35N 24W 5		
Downstream Legal Description	36N 24W 33		
Number of Sites Evaluated	5		
List all site numbers, listed upstream to downstream 5,4,3,2,1			

Discharger Facility Information

Discharger Facility Name(s):	Flemington WWTP
Discharger Permit Number(s):	MO 0118982

UAA Surveyor

Name of Surveyor:	Nolan Pringle	Telephone Number:	(913)307-0046
Organization/Employer: SES, Inc.			
Position: Field Team Leader			

Signed: _____ Date: _____

Field Data Sheets for Recreational Use Stream Surveys
Data Sheet B - Site Characterization
(must be completed for each site)

WBID 1373
 Site # 1

Date and Time: 5/17/2007 9:30

Current Weather Conditions Clear Skies

Weather Conditions for Past 10 days: Rain showers on 5/9, 5/10, and 5/15

Drought Conditions? No

Site Location (e.g. road crossing) 700 yards downstream of HWY 13 road crossing

GPS Mark: 16

Upstream Photo 33 Downstream Photo 32

Uses Observed (Uses actually observed at time of survey) Circle

Swimming	Skin Diving	SCUBA diving	Tubing
Water Skiing	Wind Surfing	Kayaking	Boating
Wading	Rafting	Hunting	Trapping
Fishing	None of the Above	Other	

Surrounding Conditions

City/county parks	Playgrounds	MDC conservation lands	Urban areas
Campgrounds	Boating accesses	State parks	National Forests
Nature trails	Stairs/walkway	No trespass sign	Fence
Steep slopes	None of the Above	Other	

Indications of Human Use Picture 31

Roads : (Picture 31)	Rope swings	Foot paths/prints	Dock/platform
Livestock Watering	RV/ATV Tracks	Camping Sites	Fire pit/ring
NPDES Discharge	Fishing Tackle	Other:	

WBID # 1373 **Site #** 1
Mark # 16 **Dissolved Oxygen (ppm)** 10.8
Upstream Views Physical Dimensions: Is there any water present at this view? yes
 If so, is there an obvious current? yes

Select one of the following channel features:

	% of Channel Feature				
Riffle	20				
Run	0				
Pool	80				

Downstream View's Physical Dimensions: Is there any water present at this view?

If so, is there an obvious current?

Substrate:

45% Cobble	50% Gravel	0% Sand	5% Silt
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0% Mud/Clay	0% Bedrock
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Aquatic Vegetation: (Note amount of vegetation or algal growth at the assessment site)

Filamentous green algae in riffles, no floating algae present, algae covering rocks, vegetation along banks

Water Characteristics

Odor	Sewage	Musky	Chemical	None	Other
Color	Clear	Green	Gray	Milky	Other: Milky Brown
Bottom Deposit	Sludge	Solids	Fine Sed.	None	Other: Leaves and detritus
Surface Deposit	Oil	Scum	Foam	None	Other

Data Sheet C: Cross-Sectional Depth Measurements (for estimation of median depth)
(Median Depth Shown in Bold)

Site # 1

Mark # 16

	Depth (m)		Depth (m)		Depth (m)
Transect 1	0.20	Transect 5	0.15	Transect 9	0.10
Substrate:	0.40	Substrate:	0.40	Substrate:	0.20
Cobble, Gravel, Silt	0.40	Cobble, Gravel	0.60	Gravel, Cobble	0.25
Water Clarity:	0.40	Water Clarity:	0.55	Water Clarity:	0.35
Murky	0.45	Clear to Murky	0.55	Murky	0.45
Channel Feature:	0.45	Channel Feature:	0.50	Channel Feature:	0.50
Pool	0.45	Pool	0.50	Pool	0.50
Channel Width:	0.50	Channel Width:	0.35	Channel Width:	0.55
16 yards	0.50	6 yards	0.25	9 yards	0.55
0.43	0.30	0.45	0.15	0.43	0.40
Transect 2	0.40	Transect 6	0.20	Transect 10	0.10
Substrate:	0.50	Substrate:	0.25	Substrate:	0.30
Gravel, Silt	0.65	Gravel, Silt	1.00	Gravel, Cobble	0.40
Water Clarity:	0.75	Water Clarity:	1.00	Water Clarity:	0.00
Murky	0.80	Murky	1.00	Murky	0.00
Channel Feature:	0.90	Channel Feature:	1.00	Channel Feature:	0.00
Pool	0.90	Pool	1.00	Pools	0.00
Channel Width:	0.70	Channel Width:	1.00	Channel Width:	0.20
13 yards	0.65	14 yards	0.85	18 yards	0.40
0.68	0.55	1.00	0.45	0.15	0.20
Transect 3	0.05	Transect 7	0.05	Transect 11	0.10
Substrate:	0.20	Substrate:	0.15	Substrate:	0.15
Cobble	0.25	Cobble, Gravel	0.20	Gravel, Cobble	0.15
Water Clarity:	0.20	Water Clarity:	0.30	Water Clarity:	0.00
Clear	0.20	Clear to Murky	0.35	Clear	0.00
Channel Feature:	0.20	Channel Feature:	0.35	Channel Feature:	0.00
Riffle	0.10	Pool	0.30	Riffles	0.00
Channel Width:	0.15	Channel Width:	0.30	Channel Width:	0.00
13 yards	0.10	11 yards	0.20	35 yards	0.05
0.18	0.10	0.25	0.15	0.03	0.05
Transect 4	0.15	Transect 8	0.30		
Substrate:	0.35	Substrate:	0.35	SITE MEDIAN	SITE MAXIMUM
Gravel, Cobble	0.50	Gravel, Cobble	0.40	0.35	1.00
Water Clarity:	0.60	Water Clarity:	0.40		
Clear to Murky	0.70	Murky	0.30		
Channel Feature:	0.70	Channel Feature:	0.30		
Pool	0.90	Pool	0.40		
Channel Width:	1.00	Channel Width:	0.70		
12 yards	0.95	17 yards	0.65		
0.70	0.75	0.40	0.40		

Field Data Sheets for Recreational Use Stream Surveys
Data Sheet B - Site Characterization
(must be completed for each site)

WBID 1373
 Site # 2

Date and Time: 5/17/2007 10:45

Current Weather Conditions

Weather Conditions for Past 10 days: Rain showers on 5/9, 5/10, and 5/15

Drought Conditions? No

Site Location (e.g. road crossing) At HWY 13 Road Crossing

GPS Mark: 17

Upstream Photo 34 Downstream Photo 35

Uses Observed (Uses actually observed at time of survey) Circle

Swimming	Skin Diving	SCUBA diving	Tubing
Water Skiing	Wind Surfing	Kayaking	Boating
Wading	Rafting	Hunting	Trapping
Fishing	None of the Above	Other	

Surrounding Conditions

City/county parks	Playgrounds	MDC conservation lands	Urban areas
Campgrounds	Boating accesses	State parks	National Forests
Nature trails	Stairs/walkway	No trespass sign	Fence
Steep slopes	None of the Above	Other	

Indications of Human Use

Roads	Rope swings	Foot paths/prints	Dock/platform
Livestock Watering	RV/ATV Tracks	Camping Sites	Fire pit/ring
NPDES Discharge	Fishing Tackle	Other:	None of the Above

WBID #	1373	Site #	2
Mark #	17	Dissolved Oxygen (ppm)	11.4
Upstream Views Physical Dimensions:	Is there any water present at this view? yes		

If so, is there an obvious current? yes

Select one of the following channel features:

% of Channel Feature

	% of Children's Culture				
Riffle	9				
Run	0				
Pool	91				

Downstream View's Physical Dimensions: Is there any water present at this view?

If so, is there an obvious current?

Substrate:

15% Cobble	20% Gravel	0% Sand	60% Silt
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0% Mud/Clay	5% Bedrock
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Aquatic Vegetation: (Note amount of vegetation or algal growth at the assessment site)

Aquatic grasses under bridges, algae covering rocks, no floating algae, and vegetation along banks

Water Characteristics

Odor	Sewage	Musky	Chemical	<i>None</i>	Other
Color	<i>Clear</i>	Green	Gray	Milky	Other
Bottom Deposit	Sludge	Solids	Fine Sed.	None	<i>Other: Leaves, detritus</i>
Surface Deposit	Oil	Scum	Foam	<i>None</i>	Other

Data Sheet C: Cross-Sectional Depth Measurements (for estimation of median depth)
(Median Depth Shown in Bold)

Site # 2

Mark # 17

	Depth (m)		Depth (m)		Depth (m)
Transect 1	0.10	Transect 5	0.60	Transect 9	0.30
Substrate:	0.20	Substrate:	1.00	Substrate:	0.40
Cobble	0.20	Gravel,Silt	1.00	Silt	0.30
Water Clarity:	0.25	Water Clarity:	1.00	Water Clarity:	0.00
Clear	0.25	Clear	1.00	Clear	0.00
Channel Feature:	0.25	Channel Feature:	1.00	Channel Feature:	0.00
Pool	0.25	Pool	1.00	Pool	0.65
Channel Width:	0.25	Channel Width:	0.80	Channel Width:	0.85
13 yards	0.20	15 yards	0.80	18 yards	0.75
0.23	0.20	1.00	0.60	0.35	0.60
Transect 2	0.30	Transect 6	0.50	Transect 10	0.20
Substrate:	0.60	Substrate:	1.00	Substrate:	0.30
Silt	0.70	Silt	1.00	Cobble, Gravel	0.00
Water Clarity:	0.90	Water Clarity:	1.00	Water Clarity:	0.00
Clear	0.80	Clear	1.00	Clear	0.00
Channel Feature:	0.80	Channel Feature:	1.00	Channel Feature:	0.00
Pool	0.80	Pool	1.00	Riffle	0.00
Channel Width:	0.80	Channel Width:	1.00	Channel Width:	0.00
15 yards	0.80	13 yards	0.90	28 yards	0.25
0.80	0.50	1.00	0.55	0.00	0.25
Transect 3	0.25	Transect 7	0.55	Transect 11	0.20
Substrate:	0.60	Substrate:	0.50	Substrate:	0.30
Cobble,Gravel	0.40	Silt	0.55	Bedrock	0.25
Water Clarity:	0.30	Water Clarity:	0.55	Water Clarity:	0.25
Clear	0.15	Clear	0.55	Clear	0.20
Channel Feature:	0.20	Channel Feature:	0.60	Channel Feature:	0.20
Pool	0.50	Pool	0.60	Pool	0.20
Channel Width:	0.55	Channel Width:	0.60	Channel Width:	0.20
25 yards	0.40	17 yards	0.65	15 yards	0.20
0.40	0.40	0.55	0.40	0.20	0.20
Transect 4	0.50	Transect 8	0.10		
Substrate:	0.90	Substrate:	0.25	SITE MEDIAN	SITE MAXIMUM
Gravel	0.90	Silt	0.00	0.50	1.00
Water Clarity:	0.90	Water Clarity:	0.00		
Clear	0.95	Clear	0.00		
Channel Feature:	1.00	Channel Feature:	0.00		
Pool	0.90	Pool	0.45		
Channel Width:	0.95	Channel Width:	0.55		
18 yards	0.70	18 yards	0.70		
0.90	0.65	0.18	0.40		

Field Data Sheets for Recreational Use Stream Surveys
Data Sheet B - Site Characterization
(must be completed for each site)

WBID 1373
 Site # 3

Date and Time: 5/17/2007 12:30

Current Weather Conditions Sunny, clear skies

Weather Conditions for Past 10 days: Rain showers on 5/9, 5/10, and 5/15

Drought Conditions? No

Site Location (e.g. road crossing) At county rd. 971 (Locals say road is mislabeled)

GPS Mark: 18

Upstream Photo 36 Downstream Photo 37

Uses Observed (Uses actually observed at time of survey) Circle

Swimming	Skin Diving	SCUBA diving	Tubing
Water Skiing	Wind Surfing	Kayaking	Boating
Wading	Rafting	Hunting	Trapping
Fishing	None of the Above	Other	

Surrounding Conditions

City/county parks	Playgrounds	MDC conservation lands	Urban areas
Campgrounds	Boating accesses	State parks	National Forests
Nature trails	Stairs/walkway	No trespass sign	Fence
Steep slopes	None of the Above	Other	

Indications of Human Use

Roads : Picture 38	Rope swings	Foot paths/prints	Dock/platform
Livestock Watering	RV/ATV Tracks	Camping Sites	Fire pit/ring
NPDES Discharge	Fishing Tackle	Other:	

WBID # 1373 **Site #** 3
Mark # 18 **Dissolved Oxygen (ppm)** 10.6
Upstream Views Physical Dimensions: Is there any water present at this view? yes
 If so, is there an obvious current? yes

Select one of the following channel features:

	% of Channel Feature				
Riffle	27				
Run	0				
Pool	73				

Downstream View's Physical Dimensions: Is there any water present at this view?

If so, is there an obvious current?

Substrate:

24% Cobble	16% Gravel	0% Sand	0% Silt
0% Mud/Clay	60% Bedrock		

Aquatic Vegetation: (Note amount of vegetation or algal growth at the assessment site)

Aquatic grasses, algae covering rocks, no floating algae, and vegetation along banks

Water Characteristics

Odor	Sewage	Musky	Chemical	None	Other
Color	Clear	Green	Gray	Milky	Other
Bottom Deposit	Sludge	Solids	Fine Sed.	None	Other
Surface Deposit	Oil	Scum	Foam	None	Other

Data Sheet C: Cross-Sectional Depth Measurements (for estimation of median depth)
(Median Depth Shown in Bold)

Site # 3

Mark # 18

	Depth (m)		Depth (m)		Depth (m)
Transect 1	0.05	Transect 5	0.05	Transect 9	0.10
Substrate:	0.15	Substrate:	0.10	Substrate:	0.15
Bedrock,Cobble,Gr	0.15	Bedrock,Cobble	0.15	Bedrock,Cobble	0.15
Water Clarity:	0.05	Water Clarity:	0.15	Water Clarity:	0.20
Clear	0.10	Clear	0.15	Clear	0.25
Channel Feature:	0.15	Channel Feature:	0.10	Channel Feature:	0.10
Riffle	0.20	Riffle	0.10	Riffle	0.05
Channel Width:	0.15	Channel Width:	0.10	Channel Width:	0.10
12 yards	0.10	7 yards	0.05	14 yards	0.05
0.13	0.10	0.10	0.05	0.10	0.05
Transect 2	0.15	Transect 6	0.05	Transect 10	0.25
Substrate:	0.30	Substrate:	0.15	Substrate:	0.20
Bedrock,Cobble,Gr	0.30	Bedrock,Cobble	0.10	Bedrock	0.20
Water Clarity:	0.35	Water Clarity:	0.15	Water Clarity:	0.30
Clear	0.35	Clear	0.20	Clear	0.30
Channel Feature:	0.15	Channel Feature:	0.20	Channel Feature:	0.30
Pool	0.10	Pool	0.20	Riffle	0.20
Channel Width:	0.10	Channel Width:	0.20	Channel Width:	0.25
12 yards	0.10	9 yards	0.15	14 yards	0.25
0.15	0.10	0.15	0.10	0.25	0.10
Transect 3	0.05	Transect 7	0.20	Transect 11	0.20
Substrate:	0.15	Substrate:	0.30	Substrate:	0.25
Bedrock	0.20	Bedrock,cobble	0.30	Bedrock	0.25
Water Clarity:	0.30	Water Clarity:	0.40	Water Clarity:	0.25
Clear	0.30	Clear	0.45	Clear	0.20
Channel Feature:	0.40	Channel Feature:	0.45	Channel Feature:	0.20
Pool	0.35	Pool	0.40	Pool	0.20
Channel Width:	0.30	Channel Width:	0.35	Channel Width:	0.20
13 yards	0.25	10 yards	0.25	11 yards	0.20
0.28	0.15	0.33	0.15	0.20	0.15
Transect 4	0.05	Transect 8	0.30		
Substrate:	0.15	Substrate:	0.30	SITE MEDIAN	SITE MAXIMUM
Bedrock,Cobble	0.15	Bedrock	0.35	0.20	0.45
Water Clarity:	0.15	Water Clarity:	0.35		
Clear	0.20	Clear	0.35		
Channel Feature:	0.25	Channel Feature:	0.30		
Pool	0.25	Pool	0.35		
Channel Width:	0.20	Channel Width:	0.25		
9 yards	0.20	14 yards	0.25		
0.18	0.10	0.30	0.20		

Field Data Sheets for Recreational Use Stream Surveys
Data Sheet B - Site Characterization
(must be completed for each site)

WBID 1373
 Site # 4

Date and Time: 5/17/2007 14:05

Current Weather Conditions Sunny, Clear Skies

Weather Conditions for Past 10 days: Rain showers on 5/9, 5/10, and 5/15

Drought Conditions? No

Site Location (e.g. road crossing) 350 yards upstream of rd. crossing 971

GPS Mark: 19

Upstream Photo 40 Downstream Photo 39

Uses Observed (Uses actually observed at time of survey) Circle

Swimming	Skin Diving	SCUBA diving	Tubing
Water Skiing	Wind Surfing	Kayaking	Boating
Wading	Rafting	Hunting	Trapping
Fishing	None of the Above	Other	

Surrounding Conditions

City/county parks	Playgrounds	MDC conservation lands	Urban areas
Campgrounds	Boating accesses	State parks	National Forests
Nature trails	Stairs/walkway	No trespass sign	Fence
Steep slopes	None of the Above	Other	

Indications of Human Use

Roads	Rope swings	Foot paths/prints	Dock/platform
Livestock Watering	RV/ATV Tracks	Camping Sites	Fire pit/ring
NPDES Discharge	Fishing Tackle	Other:	None of the Above

WBID # 1373 **Site #** 4
Mark # 19 **Dissolved Oxygen (ppm)** 10.3
Upstream Views Physical Dimensions: Is there any water present at this view? yes
 If so, is there an obvious current? yes

Select one of the following channel features:

	% of Channel Feature				
Riffle	40				
Run					
Pool	60				

Downstream View's Physical Dimensions: Is there any water present at this view?

If so, is there an obvious current?

Substrate:

28% Cobble	28% Gravel	0% Sand	0% Silt
0% Mud/Clay	44% Bedrock		

Aquatic Vegetation: (Note amount of vegetation or algal growth at the assessment site)

Filamentous green algae in riffles, no floating algae present, vegetation located along banks, and algae covering rocks

Water Characteristics

Odor	Sewage	Musky	Chemical	None	Other
Color	Clear	Green	Gray	Milky	Other
Bottom Deposit	Sludge	Solids	Fine Sed.	None	Other
Surface Deposit	Oil	Scum	Foam	None	Other

Data Sheet C: Cross-Sectional Depth Measurements (for estimation of median depth)

(Median Depth Shown in Bold)

Site # 4

Mark # 19

	Depth (m)		Depth (m)		Depth (m)
Transect 1	0.20	Transect 5	0.55	Transect 9	0.20
Substrate:	0.40	Substrate:	0.55	Substrate:	0.30
Gravel, Cobble	0.70	Cobble, Bedrock	0.50	Bedrock	0.40
Water Clarity:	0.75	Water Clarity:	0.55	Water Clarity:	0.40
Clear	0.80	Clear	0.50	Clear	0.35
Channel Feature:	0.90	Channel Feature:	0.30	Channel Feature:	0.40
Pool	0.85	Pool	0.20	Pool	0.45
Channel Width:	0.70	Channel Width:	0.20	Channel Width:	0.45
9 yards	0.50	7 yards	0.20	10 yards	0.45
0.70	0.40	0.40	0.10	0.40	0.35
Transect 2	0.30	Transect 6	0.15	Transect 10	0.15
Substrate:	0.40	Substrate:	0.25	Substrate:	0.30
Bedrock	0.40	Bedrock, Gravel	0.30	Bedrock, Gravel	0.45
Water Clarity:	0.45	Water Clarity:	0.25	Water Clarity:	0.45
Clear	0.40	Clear	0.25	Clear	0.45
Channel Feature:	0.45	Channel Feature:	0.25	Channel Feature:	0.40
Pool	0.35	Pool	0.30	Pool	0.40
Channel Width:	0.35	Channel Width:	0.30	Channel Width:	0.35
10 yards	0.30	10 yards	0.25	10 yards	0.25
0.38	0.25	0.25	0.20	0.38	0.20
Transect 3	0.30	Transect 7	0.05	Transect 11	0.15
Substrate:	0.45	Substrate:	0.25	Substrate:	0.30
Gravel, Cobble	0.40	Rock, Cobble, Gravel	0.25	Gravel, Cobble	0.35
Water Clarity:	0.45	Water Clarity:	0.30	Water Clarity:	0.50
Clear	0.45	Clear	0.30	Clear	0.60
Channel Feature:	0.40	Channel Feature:	0.30	Channel Feature:	0.70
Pool	0.30	Pool	0.30	Pool	0.60
Channel Width:	0.20	Channel Width:	0.30	Channel Width:	0.65
12 yards	0.15	6 yards	0.35	7 yards	0.65
0.35	0.15	0.30	0.30	0.55	0.50
Transect 4	0.20	Transect 8	0.05		
Substrate:	0.45	Substrate:	0.20	SITE MEDIAN	SITE MAXIMUM
Gravel, Cobble	0.60	Cobble	0.25	0.35	0.90
Water Clarity:	0.65	Water Clarity:	0.20		
Clear	0.80	Clear	0.25		
Channel Feature:	0.90	Channel Feature:	0.30		
Pool	0.80	Pool	0.35		
Channel Width:	0.75	Channel Width:	0.35		
11 yards	0.65	13 yards	0.30		
0.65	0.45	0.28	0.35		

Field Data Sheets for Recreational Use Stream Surveys
Data Sheet B - Site Characterization
(must be completed for each site)

WBID 1373
 Site # 5

Date and Time: 5/17/2007 14:45

Current Weather Conditions

Weather Conditions for Past 10 days: Rain showers on 5/9, 5/10, and 5/15

Drought Conditions? No

Site Location (e.g. road crossing) 600 yards upstream of crossing 971

GPS Mark: 20

Upstream Photo 41 Downstream Photo 42

Uses Observed (Uses actually observed at time of survey) Circle

Swimming	Skin Diving	SCUBA diving	Tubing
Water Skiing	Wind Surfing	Kayaking	Boating
Wading	Rafting	Hunting	Trapping
Fishing	None of the Above	Other	

Surrounding Conditions

City/county parks	Playgrounds	MDC conservation lands	Urban areas
Campgrounds	Boating accesses	State parks	National Forests
Nature trails	Stairs/walkway	No trespass sign	Fence
Steep slopes	None of the Above	Other	

Indications of Human Use

Roads	Rope swings	Foot paths/prints	Dock/platform
Livestock Watering	RV/ATV Tracks	Camping Sites	Fire pit/ring
NPDES Discharge	Fishing Tackle	Other:	None of the Above

WBID # 1373 **Site #** 5
Mark # 20 **Dissolved Oxygen (ppm)** 9.4
Upstream Views Physical Dimensions: Is there any water present at this view? yes
 If so, is there an obvious current? yes

Select one of the following channel features:

	% of Channel Feature				
Riffle	30				
Run					
Pool	70				

Downstream View's Physical Dimensions: Is there any water present at this view?

If so, is there an obvious current?

Substrate:

40% Cobble	32% Gravel	0% Sand	8% Silt
0% Mud/Clay	20% Bedrock		

Aquatic Vegetation: (Note amount of vegetation or algal growth at the assessment site)

Aquatic grasses present, no floating algae, vegetation along banks and algae covering rocks

Water Characteristics

Odor	Sewage	Musky	Chemical	None	Other
Color	Clear	Green	Gray	Milky	Other
Bottom Deposit	Sludge	Solids	Fine Sed.	None	Other
Surface Deposit	Oil	Scum	Foam	None	Other

Data Sheet C: Cross-Sectional Depth Measurements (for estimation of median depth)
(Median Depth Shown in Bold)

Site # 5

Mark # 20

	Depth (m)		Depth (m)		Depth (m)
Transect 1	0.10	Transect 5	0.10	Transect 9	0.10
Substrate:	0.30	Substrate:	0.25	Substrate:	0.15
Cobble, Gravel	0.35	Cobble, Gravel	0.25	Cobble, Gravel	0.20
Water Clarity:	0.35	Water Clarity:	0.50	Water Clarity:	0.20
Clear	0.35	Clear	0.60	Clear	0.25
Channel Feature:	0.40	Channel Feature:	0.70	Channel Feature:	0.30
Pool	0.55	Pool	0.85	Pool	0.30
Channel Width:	0.65	Channel Width:	0.85	Channel Width:	0.30
15 yards	0.60	11 yards	0.80	8 yards	0.25
0.38	0.65	0.65	0.70	0.23	0.20
Transect 2	0.15	Transect 6	0.20	Transect 10	0.30
Substrate:	0.30	Substrate:	0.35	Substrate:	0.55
Cobble, Gravel	0.50	Cobble, Gravel	0.40	Bedrock, Silt	0.65
Water Clarity:	0.70	Water Clarity:	0.35	Water Clarity:	0.70
Clear	0.85	Clear	0.30	Clear	0.65
Channel Feature:	0.90	Channel Feature:	0.25	Channel Feature:	0.65
Pool	1.00	Pool	0.15	Pool	0.65
Channel Width:	1.00	Channel Width:	0.20	Channel Width:	0.75
16 yards	0.90	9 yards	0.15	18 yards	0.75
0.78	0.55	0.23	0.10	0.65	0.70
Transect 3	0.10	Transect 7	0.05	Transect 11	0.25
Substrate:	0.20	Substrate:	0.05	Substrate:	0.45
Cobble, Gravel	0.35	Cobble, Gravel	0.10	Bedrock, Silt	0.30
Water Clarity:	0.40	Water Clarity:	0.20	Water Clarity:	0.30
Clear	0.40	Clear	0.25	Clear	0.35
Channel Feature:	0.40	Channel Feature:	0.20	Channel Feature:	0.25
Pool	0.25	Riffle	0.20	Pool	0.30
Channel Width:	0.20	Channel Width:	0.15	Channel Width:	0.50
16 yards	0.15	10 yards	0.05	14 yards	0.60
0.23	0.15	0.13	0.05	0.33	0.50
Transect 4	0.20	Transect 8	0.30		
Substrate:	0.30	Substrate:	0.40	SITE MEDIAN	SITE MAXIMUM
Gravel	0.50	Bedrock, Cobble	0.40	0.35	1.00
Water Clarity:	0.60	Water Clarity:	0.50		
Clear	0.55	Clear	0.55		
Channel Feature:	0.50	Channel Feature:	0.45		
Pool	0.55	Pool	0.40		
Channel Width:	0.75	Channel Width:	0.30		
16 yards	0.70	8 yards	0.25		
0.53	0.45	0.40	0.20		

WBID# 1373 (upstream)



Site# 1 Photo ID# 43, Upstream



Site# 1 Photo ID# 44, Downstream



Site# 2 Photo ID# 45, Upstream



Site# 2 Photo ID# 46, Downstream

WBID# 1373 (upstream)



Site# 3 Photo ID# 48, Upstream



Site# 3 Photo ID# 47, Downstream



Site# 4 Photo ID# 50, Upstream



Site# 4 Photo ID# 49, Downstream

WBID# 1373 (upstream)



Site# 5 Photo ID# 51, Upstream



Site# 5 Photo ID# 52, Downstream

WBID# 1373 (downstream)



Site# 1 Photo ID# 33, Upstream



Site# 1 Photo ID# 32, Downstream



Site# 1 Photo ID# 31, Roads



Site# 2 Photo ID# 34, Upstream

WBID# 1373 (downstream)



Site# 2 Photo ID# 35, Downstream



Site# 3 Photo ID# 36, Upstream



Site# 3 Photo ID# 37, Downstream



Site# 3 Photo ID# 38, Roads

WBID# 1373 (downstream)



Site# 4 Photo ID# 40, Upstream



Site# 4 Photo ID# 39, Downstream



Site# 5 Photo ID# 41, Upstream



Site# 5 Photo ID# 42, Downstream